

AMENDMENT TO THE CLAIMS

The below listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended): A multi-modal forced vortex device, comprising:
a top plate comprising adjustable fluid passages having a first plurality of fixed sized openings;
a lower plate juxtaposed with the top plate and having a second plurality of fixed sized openings;
an adjustment means for moving the lower plate relative to the upper plate whereby the second plurality of fixed sized openings can be aligned with the first plurality of fixed sized openings;
a side wall coupled to the top plate to create a partially enclosed volume;
a plurality of blades adapted to rotate within the partially enclosed volume;
pitch adjustment means for adjusting the pitch of at least one of the blades; and
a rotating means for rotating the plurality of blades.
2. (Original): The device of claim 1, wherein the top plate comprises a surface having a substantially circular cross-section.
3. Cancelled
4. Cancelled

5. (Currently Amended): The device of claim 1 [[4]], wherein the adjustment means is further adapted to move the lower plate relative to the upper plate whereby the second plurality of fixed sized openings can be partially aligned with the first plurality of fixed sized openings.

6. (Currently Amended): The device of claim 1 [[4]], wherein the first plurality of fixed sized openings comprise holes having a substantially circular cross-section.

7. Cancelled

8. Cancelled

9. (Currently Amended): The device of claim 1 [[4]], wherein the first plurality of fixed sized openings and the second plurality of fixed sized openings have substantially the same cross-sectional shape.

10. (Currently Amended): The device of claim 1 [[4]], wherein the adjustment means comprises:

 gear teeth on at least a portion of an outer edge of the lower plate;
 a shaft having a first end, wherein the first end has gear teeth operatively coupled to the gear teeth on the outer edge of the lower plate; and
 a power source adapted to rotate the shaft.

11. (Original): The device of claim 1, wherein the side wall is coupled at an approximately ninety degree (90°) angle relative to a top surface of the top plate.

12. (Original): The device of claim 1, wherein the partially enclosed volume comprises a substantially circular cross-section.

13. (Original): The device of claim 1, wherein the blades are adapted to sweep out substantially all of the partially enclosed volume when in a first position.

14. (Original): The device of claim 1, wherein the pitch adjustment means is adapted to adjust the pitch of the at least one blade through approximately 360 degrees.

15. (Original): The device of claim 1, wherein the pitch adjustment means is adapted to adjust the pitch of the at least one blade through between approximately plus and minus ninety degrees (90°) relative to a vertical position.

16. (Original): The device of claim 1, wherein each of the plurality of blades is coupled to a separate pitch adjustment means.

17. (Original): The device of claim 16, wherein each of the plurality of pitch adjustment means adjusts the pitch of a blade independently of the action of any other one of the pitch adjustment means.

18. (Original): The device of claim 1, wherein the blades comprise an aerofoil cross-section.

19. (Original): The device of claim 1, wherein the blades comprise a rectangular shape.

20. (Original): The device of claim 1, further comprising a skirt coupled to the side wall and extending below the side wall.

21. (Original): The device of claim 1, further comprising a porous mesh coupled to a side of the side wall opposite the top plate and extending across the device in a plane substantially parallel to the top plate.

22. (Currently Amended): The device of claim 1, wherein the first and second plurality of fixed sized openings comprise adjustable fluid passages comprises a plurality of adjustable size openings in the top plate.

23. (Original): The device of claim 1, wherein the rotating means is adapted to adjust the speed of rotation of the plurality of blades.

24. (Original): The device of claim 1, wherein the rotating means comprises an electric motor.

25. (Currently Amended): The device of claim 1, wherein the rotating means is selected from the group consisting of ~~an electric motor~~, an internal combustion engine, a fuel cell and a gas turbine.

26. (Original): The device of claim 1, wherein at least one of the top plate and side wall comprise a metal.

27. (Original): The device of claim 1, wherein at least one of the top plate and side wall comprise a composite.

28. (Original): The device of claim 1, wherein at least one of the top plate and side wall comprise a plastic.

29. (Currently Amended): A vehicle having coupled thereto a device comprising:
~~a top plate comprising adjustable fluid passages having a first plurality of fixed sized openings;~~
~~a lower plate juxtaposed with the top plate and having a second plurality of fixed sized openings;~~
~~an adjustment means for moving the lower plate relative to the upper plate whereby the second plurality of fixed sized openings can be aligned with the first plurality of fixed sized openings;~~
a side wall coupled to the top plate to create a partially enclosed volume;
a plurality of blades adapted to rotate within the partially enclosed volume;
pitch adjustment means for adjusting the pitch of at least one of the blades; and
a rotating means for rotating the plurality of blades.

30. (Original): The vehicle of claim 29, wherein the vehicle comprises an automobile.

31. (Original): The vehicle of claim 29, wherein the vehicle comprises a submersible vehicle.

32. Cancelled

33. Cancelled

34. Cancelled